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## SYSTEM AND PROCEDURE FOR MOBILE ELECTRONIC COMMERCE

## TECHNICAL FIELD

The present invention relates to system and procedures  
5 for mobile electronic commerce, so called m-commerce.  
Particularly is related to m-commerce where the for the  
technical field weak links are replaced by, or completed  
with, system units and steps of procedures which offer  
improved overall capacity.

10

## PRIOR ART

In recent years the possibility for data communication  
between electronic communication terminals has increased  
dramatically. Internet interconnects smaller computer  
15 networks, and the possibilities for efficient data  
transmission in mobile telephone systems are constantly  
improving. Within what is generally called the second  
generation mobile system, for instance GSM (Global System  
for Mobile Communication), possibilities are offered for  
20 data transmission of text messages and commands by, for  
instance, SMS (Short Message Service), and more advanced  
data transmission by the packet switching service GPRS  
(General Packet Radio Service). The third generation mobile  
system, for instance UMTS (Universal Mobile  
25 Telecommunication System) will offer even better data  
transmission possibilities, primarily concerning  
transmission rate. Specific protocols, such as WAP  
(Wireless Application Protocol) for connection/set up of  
mobile telephones towards Internet have also been created.

30 The different networks for data transmission have  
implied a breakthrough for different technologies to carry  
on commerce over electronic communication networks, so  
called electronic commerce or e-commerce. This includes  
among other things marketing and selling of different  
35 products and services on the Internet, at which buyers are  
given possibility to select and sometimes pay over Internet

by means of a connected/set up computer. The development of e-commerce to mobile terminals are usually called m-commerce, mobile commerce, at which mobile telephones or other portable terminals which can be connected wirelessly to a stationary communication network replace the traditional desktop.

M-commerce, however, is impaired by some technical problems as a consequence of the character of the portable terminals. This applies to the bandwidth limitation in the wireless data transmission, but also the usually small size of the screen of the mobile terminal and the limited memory capacity. This makes it difficult for a terminal user to in a satisfactory way, on his/her mobile terminal show a product which shall be sold via a mobile channel.

In the prior art a number of different solutions have been shown within the field.

In W000/57596 a method and a system to verify/guarantee the identity of a buyer when he/she is not in advance known to the seller, is shown. For this purpose a seller application is arranged in a data communication network, accessible only from a mobile terminal in a radio communication system, at which the terminal owner is identified by register information about him/her at the mobile operator.

In US6,026,375 system and procedures are shown which make possible for service providers to receive an order from a mobile consumer, receive position information for/of the consumer, and to make up a schedule for the finishing the consumer's order to coincide with the consumer's arrival at a local establishment where the consumer's order can be satisfied.

W001/13341 describes a system where a buyer communicates directly with a seller via a mobile terminal, and where one for the purpose arranged security device is used during the purchase process.

None of the shown/presented solutions, however, offer any solution to the previously indicated problems. Thus, the invention relates to a procedure and a system for m-commerce which overcomes the problems of prior art.

5

#### SUMMARY OF THE INVENTION

In order to achieve above mentioned aim, the present invention relates according to a first aspect to a procedure for electronic commerce, including the steps  
10 that: a purchase code related to an object for selling by a seller is registered and stored in a memory device in a computer system at a service provider in a mobile telecommunication system; information about the object is shown/presented together with the purchase code in a  
15 general presentation device; an interested buyer of the object transmits said purchase code to the service provider via his/her mobile telephone; the service provider effects payment for the object to the seller; and the seller delivers the object to the buyer.

20 Preferably the buyer encloses identification or authentication data at the transmission of the purchase code, at which the service provider, by means of said identification or authentication data, verifies that the buyer is registered as buyer at the service provider. In  
25 one embodiment said identification or authentication data include a PIN-code for the buyer. In an alternative embodiment said identification or authentication data include a digital certificate. Said identification or authentication data also can be connected/associated to the  
30 buyer's SIM-card (Subscriber Identification Module).

Preferably identification or authentication data are transmitted together with the purchase code in an SMS-message. Alternatively said identification or authentication data are transmitted together with the  
35 purchase code via a protocol for wireless data transmission.

In one embodiment a search/information retrieval device is arranged in the service provider's computer system, at reception of said purchase code, which search device executes a search/information retrieval in said  
5 memory device for the seller who is related to said purchase code. Further, preferably the steps are included that: a purchase management device at the service provider generates and transmits an object inquiry, including said purchase code, to said seller; object data device arranged  
10 at the seller derives object data in an object database, with said purchase code as an input parameter; the object data device answers the object inquiry by transmitting said object data; and said object data are logged by the purchase management device. Preferably said object data  
15 include information about the object and its price.

In one embodiment the purchase management device transmits, at reception of object data, a purchase confirmation inquiry to the buyer's mobile telephone and encloses information from/of said object data. Said  
20 purchase confirmation inquiry is transmitted in one embodiment via a mobile Push-service.

Preferably the buyer confirms the purchase by transmitting a return message to the purchase management device, whereupon the purchase management device transmits  
25 the purchase order to the seller, and economic means for payment of the object are transmitted or booked by the service provider to the seller.

In one embodiment said buyer is a registered customer to the by the service provider offered mobile commerce  
30 service, where address data for delivery of purchased objects are stored in a customer database at the service provider.

According to a second aspect of the present invention, a system for mobile electronic commerce is offered which  
35 includes the for the procedure necessary components.

## BRIEF DESCRIPTION OF THE DRAWINGS

Further aims, advantages and characteristics of the present invention are shown/presented in the detailed description of preferred embodiments below, with reference  
5 to the only enclosed drawing, in which  
Figure 1 schematically illustrates units which are included in, or relate to, the system according to a present embodiment of the invention, and which execute the for the invention specific  
10 steps of procedure.

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The basic idea behind the present invention is that in order to make m-commerce boom, one should concentrate on  
15 presenting the product to the prospective buyer via some other channel than the mobile one, since this usually does not fulfill the buyer's demands, due to previously shown disadvantages. According to the present invention, other general presentation devices for other information channels  
20 are preferably utilized instead, which the user, that is the prospective buyer, utilizes or will get into contact with for other purposes. Examples of such information channels are TV and printed media, at which a general presentation device can be a TV-set, a newspaper or, for  
25 instance, a commercial billboard on public means of transport. By general presentation devices are consequently meant public devices for presentation of information in text, sound, stills or film, where the buyer's mobile terminal, or the communication system to which it belongs,  
30 does not set the limit for the presentation of the offered object, which object can be a product or a service for sale. The mobile terminal is instead used for purchase or ordering and, whenever applicable, identification or authentication of the buyer.

35 In Figure 1 a preferred embodiment of a system according to the present invention is shown. A user 8 is

connected to a mobile telecommunication system, and has a mobile telephone 9 by which radio contact/communication can be achieved with a base station 7 in a stationary communication network 6 in the telecommunication system. A service provider in the mobile telephone system, who also can be the mobile operator, has at his/her disposal one to the stationary communication network 6 connected computer system 1, which in known way includes at least one processor with associated memory, and a computer program product including a computer program to establish and run an m-commerce service according to the present invention. To the computer system 1, further a memory device 2, for instance a database arranged in a data storing unit, is connected alternatively built in. The telecommunication system is via the service provider's computer system 1 connected to Internet 5. To Internet also a seller is connected via his/her computer system 3. The seller also has an associated database 4, with stored information about objects, that is products or services, for sale.

In one preferred embodiment of the procedure according to the present invention, the user 8, that is the buyer, applies for a mobile commerce service at the service provider of this service. The service provider is represented by his/her operative computer system 1 which executes the steps of procedure according to the invention, and is in the shown embodiment the mobile service operator, but might just as well be one to the mobile operator closely associated party. The service provider 1 receives address information and/or other information for delivery from the user 8, which information is stored 2 at the service provider 1. The service provider 1 also can establish a method to charge the user 8, for instance a prepaid account, if no such method is already established. The service provider 1 of the mobile commerce service preferably also acquires means to authenticate the user 8, if such means do not already exist. It can be about issuing digital



certificates, or allocate a PIN-code to the user. Exactly what is done depends on which level of security one wants to attain.

The company or the seller, represented by its  
5 operative computer system 3 which executes the steps of procedure according to the invention, which/who has a product for sale, gets into contact with the service provider 1 of the mobile commerce service, signs an  
10 agreement about utilizing the mobile commerce service, and receives by the service provider a purchase code for its article or service, or a set of codes which the seller can use for his/her different objects. In one embodiment the purchase code is simply a unique serial number, but may also partially include signs or symbols which are specific to the  
15 seller. Information about which code/set of codes which has been allocated respective seller is saved 2 at the service provider 1 of the mobile commerce service.

The seller presents the product by some general presentation device 11, for instance on TV, Text TV, in  
20 newspapers, advertising in public places etc, together with the purchase code and a reference to at which service provider 1 of mobile commerce service the code applies.

When the user has seen the advertising or the product information in a general presentation device 11, and decides  
25 on a purchase, he or she 8 transmits the purchase code from his/her mobile telephone 9 to the provider/mediator 1 of the mobile commerce service. This is done via a channel or method where the service provider 1 of the mobile commerce service can authenticate/identify the user 8. Example of  
30 methods for authentication which agree with the present invention is in the case GSM-transmission of an SMS-message with a PIN-code for authentication, plus purchase code for identification of wanted object. More advanced solutions can be arranged by means of, for instance, WAP/WPKI, or SIM  
35 Application Toolkit.

The computer system 1 at the provider of the mobile commerce service executes a database search/information retrieval, or a memory information retrieval, in the storing device 2, and by that retrieves data about sellers who have  
5 been allocated the purchase code in question and transmits an inquiry to the seller, about exactly to which product/service the purchase code corresponds, and its price. At the seller, the computer system 3 registers the received inquiry, at which a database search/information retrieval is  
10 initiated in the database 4 over object information with the purchase code as input parameter. The object information for/of the purchase code in question is returned to the service provider's computer system 1, in which the answer with the object information is logged. The object  
15 information is after that forwarded to the user's 8 mobile telephone 9, preferably via a mobile Push-service such as SMS, WAP-Push or the like. With the object information follows one by the computer system 1 generated inquiry if it really was this object at this price the user wants to buy.  
20 In one embodiment an electronic agreement/contract to be signed is also enclosed.

The user 8 confirms or rejects the inquiry from the service provider, and may also sign an electronic agreement/contract, and transmits confirmation and, whenever  
25 applicable, the signed contract via a mobile channel by his/her mobile telephone 9 to the provider's computer system 1.

At confirmation that the user 8 wants to effect the purchase, information about purchase is transmitted to the seller's computer system 3 from the provider's computer  
30 system 1. Economic means are transferred/transmitted from the user's 8 account to the seller 3 and user's 8 address or other delivery information is transmitted to the seller 3 from the provider 1 of the mobile commerce service.

The seller after that delivers the purchased object to  
35 the customer 8.

In an alternative embodiment a credit procedure is utilized instead of accounts, and it is of course also possible that a pay procedure/paying means which is wholly or partially external in relation to the provider of the mobile commerce service, is utilized. The interaction between the seller 3 and the provider 1 of the mobile commerce service must be done via some type of secure communication path, and the secure communication path need not go via Internet, but may, for instance, be a direct line.

Preferred embodiments have been described in detail, at the same time as the expert realizes that modifications are possible within the scope of protection which is offered by the enclosed patent claims.

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## PATENT CLAIMS

1. Procedure for electronic commerce, including the steps that:
- 5 - a purchase code related to an object for selling by a seller is registered and stored in a memory device in a computer system at a service provider in a mobile telecommunication system;
  - information about the object is presented together
  - 10 with the purchase code and a service provider reference in a general presentation device;
  - an interested buyer of the object transmits said purchase code to the service provider via his/her mobile telephone;
  - 15 - the service provider effects/executes payment of the object to the seller; and
  - the seller delivers the object to the buyer.
2. Procedure as claimed in patent claim 1, further
- 20 including the steps that:
- the buyer encloses identification or authentication data at the transmission of the purchase code;
  - the service provider, by means of said identification or authentication data, verifies that the buyer is registered
  - 25 as buyer at the service provider.
3. Procedure as claimed in patent claim 2, at which said identification or authentication data include a PIN-code for the buyer.
- 30
4. Procedure as claimed in patent claim 2, at which said identification or authentication data include a digital certificate.

5. Procedure as claimed in patent claim 2, at which said identification or authentication data are connected/ associated to the buyer's SIM-card.
- 5 6. Procedure as claimed in any of the previous patent claims, at which said identification or authentication data are transmitted together with the purchase code in an SMS-message.
- 10 7. Procedure as claimed in any of the previous patent claims, at which said identification or authentication data are transmitted together with the purchase code via a protocol for wireless data transmission.
- 15 8. Procedure as claimed in any of the previous patent claims, at which a search/an information retrieval device arranged in the service provider's computer system, at reception of said purchase code, makes/executes an information retrieval in said memory device for the seller  
20 who is related to said purchase code.
9. Procedure as claimed in patent claim 8, after said search/information retrieval further including the steps that:
- 25 - a purchase management device at the service provider generates and transmits an object inquiry, including said purchase code, to said seller;
- object data devices arranged at the seller derive object data in an object database, with said purchase code as an  
30 input parameter;
- the object data device answers the object inquiry by transmitting said object data; and
- said object data are logged by the purchase management device.

10. Procedure as claimed in patent claim 9, at which said object data include information about the object and its price.

5 11. Procedure as claimed in patent claim 10, at which the purchase management device at reception of object data transmits a purchase confirmation inquiry to the buyer's mobile telephone and encloses information from said object data.

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12. Procedure as claimed in patent claim 11, at which said purchase confirmation inquiry is transmitted via a mobile Push-service.

15 13. Procedure as claimed in patent claim 11 or 12, at which:  
- the buyer confirms the purchase by transmitting a return message to the purchase management device;  
- the purchase management device transmits the purchase order to the seller;  
20 - economic means for payment of the object are transferred/transmitted or booked by the service provider to the seller.

14. Procedure as claimed in any of the previous patent claims, at which said buyer is registered customer to the by  
25 the service provider offered mobile commerce service, where address data for delivery of purchased objects are stored in a customer database at the service provider.

15. Procedure as claimed in patent claim 1, at which said  
30 general presentation device is a public device.

16. Procedure as claimed in patent claim 15, at which said presentation device is TV.

35 17. Procedure as claimed in patent claim 15, at which said presentation device is a printed media.

1/1

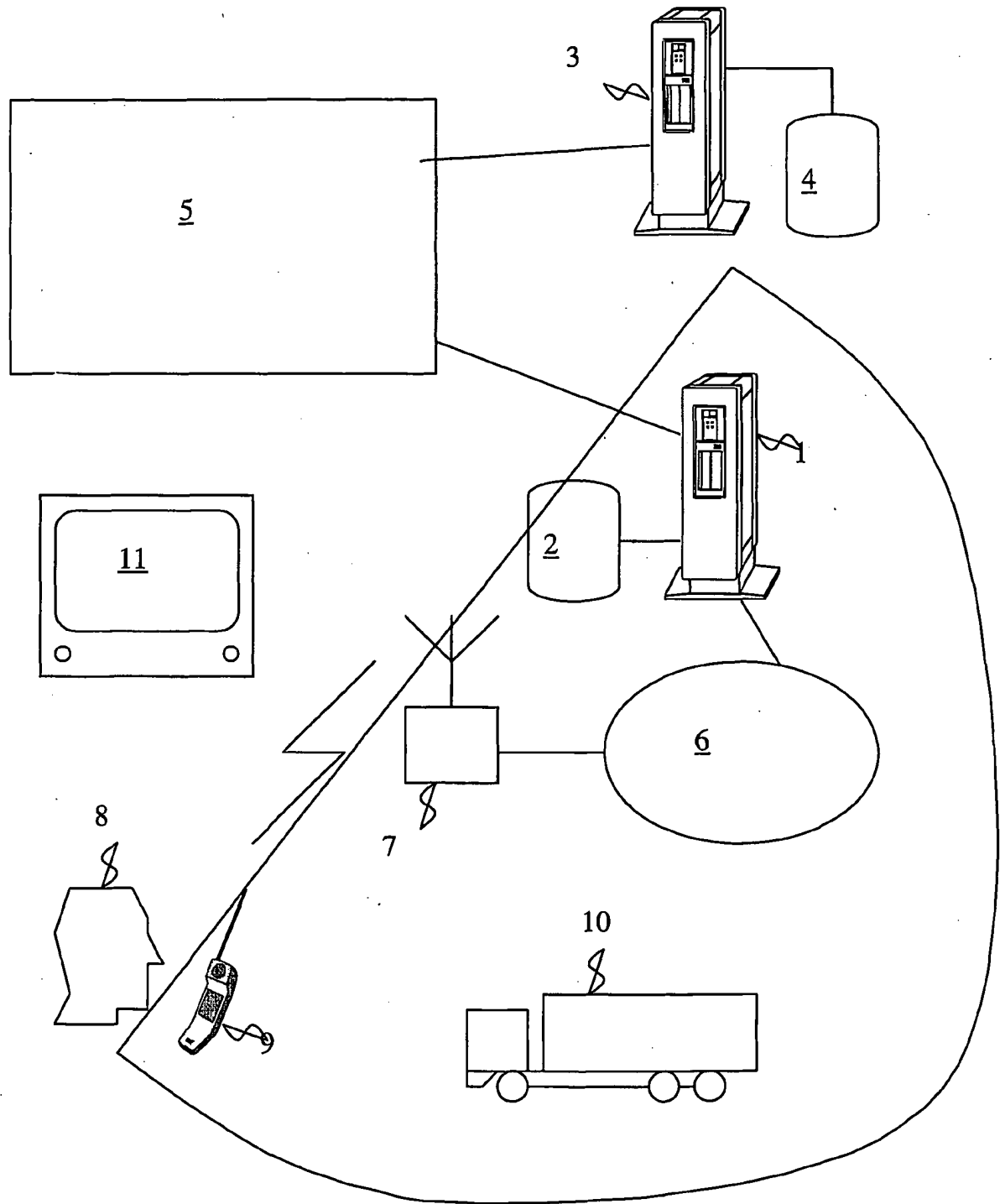


Fig. 1

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 02/01290

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06F 17/60, H04Q 7/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06F, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

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☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

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30/09/02

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02/09/02

International application No.

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